

Research Article

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Self-Identity, Sexual Practices and Sexually Transmitted Infections among High-Risk Men who Have Sex with Men Attending Clinics in Urban India

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Background

Men who have Sex with Men (MSM) have a disproportionately higher risk for HIV infection as compared to the general population [1,2]. In most Asian countries, the prevalence of HIV among MSM has been increasing in recent years [3]. In India, the HIV prevalence among MSM was 7.3% as against 0.36% in general population men in 2009; the annual HIV sentinel surveillance shows a rising trend among MSM in many states [4]. Hence, over the last few years, the National AIDS Control Organization (NACO) has scaled-up HIV prevention interventions for MSM.

HIV prevention interventions in India have categorized MSM using indigenous terms related to the sexual role – described in anal-receptive or anal-insertive terms [5]. The Indian categorization of MSM identities does not conform to the ‘gay’ or ‘homosexual’ identities used in western countries [5-7]. In India and other Asian countries, the term ‘MSM’ refers to a behaviour that applies to various self-identified sub populations [7,8]. Previous studies have broadly categorised Indian MSM into various subgroups such as; *kothis* (effeminate men, predominantly the receptors in anal/oral sex with men); *panthis* (masculine, predominantly take insertive role in anal/oral sex with men); *double-deckers* (both receptor and penetrator in sexual relations with males); bisexual men and *hijras* (male to female transgenders) [5,8-10]. *Panthis* and *double-decker* are usually the labels given by *kothis* to their male partners based on their sexual roles [6]. Studies among different MSM sub groups in India had shown that *kothis* and *double-deckers* were at higher risk for HIV and sexually transmitted infections (STIs) compared to *panthis*; similar findings were observed in Peru [9,11].

Studies have shown that MSM report both commercial as well as non-commercial/regular male partners [9,12,13]. A fair number report having female partners either through commercial sex with female sex workers, or female marital partners due to societal and peer pressures in response to social, familial and cultural norms in India and Asia [9,12-15]. It is known that the sex between men frequently involves anal intercourse which, if unprotected, carries a high risk of STIs including HIV, particularly for the receptive partner [16]. Therefore, understanding the number of partners, type of sex and sexual roles (insertive or receptive) based on identity, is important for the planning of HIV prevention interventions.

A study was carried out among MSM attending dedicated clinics in two Indian cities to assess the risk characteristics and prevalence of STIs and HIV among sub-groups based on the self-identity. The study was part of a larger operations research study to evaluate the effectiveness of an STI service package. The present paper examines the implications of MSM self-reported identity for strategic planning of prevention intervention and STI management.

Methodology

Study participants and study design

The cross-sectional study was conducted in four dedicated clinics located in two large Indian cities: two clinics each in Mumbai and Hyderabad. Three clinics were operated by community based organizations (CBOs) and one by a non-governmental organization (NGO), implementing HIV prevention programmes for high-risk MSM (HR-MSM) and transgenders (TG). The programmes provide a package of HIV prevention services including peer-led outreach education, promotion and distribution of condoms and lubricants, STI clinical services, community participation and enabling structural interventions. HR-MSM/TG avail clinic services either for treatment of STI-related symptoms or regular STI check-ups at quarterly intervals in the absence of symptoms. Additionally, the Mumbai clinics provide voluntary counselling and testing (VCT) for HIV and therefore include VCT clients.

MSM clinic attendees were eligible for this study if they were; age 18 years or more, reported sex with at least two male partners in the last month and not under the influence of alcohol or drugs at the time of the consultation. Peer educators created awareness and encouraged eligible MSM to attend the clinic and participate in the study. All MSM who attended the study clinics between October 2008 and May 2009 were screened for eligibility, and were administered informed consent. Transportation cost to attend the clinic was covered. The study protocol was approved by the institutional review ethical committees of the National AIDS Research Institute of India (NARI), and the FHI 360 Protection of Human Subjects Committee in the USA.

Data collection

Trained interviewers administered a structured questionnaire pertaining to participants’ socio-demographic characteristics, sexual practices, condom use and past exposure to HIV prevention interventions. Physicians trained in study procedures recorded

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Characteristics	Kothi Mean/% (n=275)	Panths Mean/% (n=40)	Double-decker Mean/% (n=168)	p-value	Total Mean/%(n=483)
Age: 25 years and above	61.5 (169)	42.5 (17)	54.2 (91)	0.045	57.4 (277)
Mean age (SD) in years	27.3 (5.7)	24.2 (4.2)	26.6 (6.4)	0.009	26.8 (5.9)
Literates	73.8 (203)	92.5 (37)	87.5 (147)	<0.001	80.1 (387)
10 or more years of education	63.1 (128)	70.3 (26)	67.4 (99)	0.569	65.4 (253)
Sex work as main source of income	26.9 (74)	0.0 (0)	10.7 (18)	NR*	19.1 (92)
Currently married	29.1 (80)	22.5 (9)	34.5 (58)	0.253	30.4 (147)
Living with sexual partner	38.9 (107)	22.5 (9)	44.1 (74)	0.042	39.3 (190)
Prior exposure to HIV prevention interventions**	93.5 (257)	85.0 (34)	95.2 (160)	0.065	93.4 (451)

* NR - p-value not reported because of insufficient cell size (n<2); ** visited clinic in past and/or received free condoms from peer/outreach workers

Table 1: Socio-demographic characteristics of HR-MSM in study by sexual-identity, 2008-9

information on clinical history, examination findings, diagnosis and treatment provided to the participants.

HR-MSM reported their self-identity based on their sexual role with other males [5]. While piloting the questionnaire, it was found that the terms used for sexual identity among HR-MSM clinic attendees were *kothi* (receptor), *panthi* (penetrator), and *double-decker* (both receptor and penetrator). During data collection, the participants were asked to identify themselves (spontaneous response) into one of these three mutually exclusive subcategories of self-identity.

Specimen collection and laboratory tests

The physicians collected rectal swabs during clinical examination. Rectal swabs were tested for *Neisseria gonorrhoeae* (NG) and *Chlamydia trachomatis* (CT) by polymerase chain reaction (PCR) using Roche Amplicor (Roche Molecular Diagnostics, CA USA). Urine samples were tested for NG and CT by transcription mediated amplification using Gen APTIMA – Combo II (Gen Probe, USA). Serum specimens were collected by laboratory technicians and tested for HIV using a screening test, Microlisa-HIV (J Mitra & Company Private Limited, New Delhi, India) and two rapid tests (HIV Tridot, J Mitra & Company Private Limited, New Delhi, India; CombiAids, Span Diagnostics Ltd, Surat, India). Discrepant results were confirmed by Western blot (J Mitra & Company Private Limited, New Delhi, India).

Statistical analysis

Data were double entered, compared using CPro (ORC Macro, Calverton, Maryland USA) and analyzed using STATA 12.1 (StataCorp LP, College Station, Texas USA). Statistical differences between categorical variables were assessed using the Chi-square Fisher exact test and means were compared using Bartlett's test for equal variances. All tests were double sided and a p-value inferior to 0.05 was considered statistically significant. Some of the p-values for chi-square were not reported because of insufficient cell size (n<2). Differences in sexual behaviours and prevalence of STI and HIV were assessed by self-identity.

Results

Out of 551 HR-MSM contacted for the study, 22 (4%) refused to participate and 17 (3.1%) did not undergo all study requirements (consent, behaviour questionnaire, physical examination, biological specimen, etc.). Among the 512 participants who completed the survey, 29 were excluded from the current analysis including: 28 *hijras* (male to female transgenders) and one HR-MSM who refused to provide information on self-identity. Among the 483 HR-MSM considered for the present analysis, more than half (n=275, 57%) identified themselves as *kothis*, 168 (35%) as *double-deckers* and 40 (8%) as *panthis*.

Demographic characteristics

Socio-demographic characteristics of study participants are presented in Table 1. More than half of the participants were above 25 years of age (n=277, 57%). The majority were literate (n=387, 80%) and had visited the clinic prior to the study and/or received free condoms from peer/outreach workers (n=451, 93%). About a fifth reported sex work as their main source of income (n=92, 19%), and 30% (n=147) were currently married.

As compared to other groups, *kothis* were older (mean age 27.3 years, p=0.009), less likely to be literate (74%, p<0.001). Among the HR-MSM groups, *kothis* most frequently reported sex work as their main source of income (27% versus 11% *double-deckers* and none of the *panthis*). *Panthis* were younger (mean age 24 years as compared to 27 years for *kothis* and *double-deckers*, p=0.009), and less likely to have had prior exposure to HIV prevention interventions (85% *panthis* versus 94% *kothis* and 95% *double-deckers*, p=0.065) compared to other MSM groups. None of the *panthis* reported selling sex. *Double-deckers* were more likely to be co-habiting with their sexual partner/spouse (44%, against 39% *kothis* and 23% *panthis*, p=0.042) and more likely to have been exposed to STI/HIV interventions (95% versus 94% *kothis* and 85% *panthis*, p=0.065) than other MSM in the study.

Commercial and non-commercial sexual behaviour

Table 2 shows the commercial and non-commercial sexual behaviours of the HR-MSM study participants by their reported identity. Most of the HR-MSM (75%) reported ever having had transactional sex (i.e. sex in exchange of cash or goods), including 68% who ever sold sex and 19% who ever purchased sexual services. A very small proportion (less than 3%) reported commercial sex with women in their lifetime. Mean age at initiation of sex work was about 20 years. The reported condom use at last commercial sex with males was high (87%), but consistent condom use with clients was low (58%).

Compared to other MSM groups, *kothis* were more likely to have ever sold sex to males (76% versus 13% *panthis* and 60% *double-deckers*, p<0.001), had a higher number of male clients in the past week (mean of 8.5 clients versus 4.0 and 6.6 clients for *panthis* and *double-deckers*, respectively; p=0.021). *Kothis* also reported a longer duration in commercial sex (7.2 years as compared to 3.3 years for *panthis* and 5.9 years for *double-deckers*, p=0.006). *Panthis* were more likely to buy sex from other males (23% as against 9% *kothis* and 16% *double-deckers*, p=0.015).

Almost three-fourths (73%) of all HR-MSM currently had non-commercial sexual partners, including 68% and 27% reporting male and female non-commercial partners respectively. Less than half (47%) reported consistent condom use during non-commercial sex, while

Sexual practices	Kothi Mean/% (n=275)	Panathi Mean/% (n=40)	Double-decker Mean/% (n=168)	p-value	Total Mean/% (n=483)
Commercial sexual practices					
Ever had transactional sex (sold or bought)	82.6 (227)	52.5 (21)	67.3 (113)	<0.001	74.7 (361)
Sold sex to males	76.4 (210)	12.5 (5)	60.1 (101)	<0.001	65.4 (316)
Mean male clients past week (SD)	8.5 (9.0)	4 (2.9)	6.4 (7.8)	0.021	7.7 (8.6)
Condom use at last sex with male clients	88.1 (193)	70.0 (7)	87.6 (92)	0.239	87.4 (292)
Consistent condom use (always) in commercial sex	59.8 (131)	60.0 (6)	53.3 (56)	0.537	57.8 (193)
Sold sex to females	1.5 (4)	5.0 (2)	4.8 (8)	0.066	2.9 (14)
Mean female clients past week (SD)	1.3 (0.5)	1 (0.0)	1.3 (0.7)	0.525	1.2 (0.6)
Condom use at last sex with female clients	0.0 (0)	50.0 (1)	87.5 (7)	NR*	57.1 (8)
Mean age at start of sex work (SD) in years	19.8 (4.6)	22.4 (4.3)	20.9 (4.5)	0.915	20.3 (4.6)
Mean duration in sex work (SD) in years	7.2 (5.0)	3.3 (2.5)	5.9 (5.9)	0.006	6.7 (5.3)
Bought sex from males	9.1 (25)	22.5 (9)	16.1 (27)	0.015	12.6 (61)
Bought sex from females	1.8 (5)	7.5 (3)	1.8 (3)	0.110	2.3 (11)
Non-commercial sexual practices					
Currently having non-commercial sex partner(s) – male or female	69.1 (190)	82.5 (33)	78.0 (131)	0.047	73.3 (354)
Currently have non-commercial male partner(s)	64.4 (177)	70.0 (28)	74.4 (125)	0.086	68.3 (330)
Mean male partners at present (SD)	2.6 (2.7)	3.0 (3.0)	3.0 (2.8)	0.709	2.8 (2.7)
Condom use at last sex with male partner	70.5 (134)	57.6 (19)	77.1 (101)	0.072	71.8 (254)
Consistent condom use (always) in non-commercial sex	45.8 (87)	33.3 (11)	51.9 (68)	0.146	46.9 (166)
Currently have non-commercial female partner(s)	20.4 (56)	60.0 (24)	28.6 (48)	<0.001	26.5 (128)
Mean female partners at present (SD)	1.1 (0.5)	1.8 (1.6)	1.1 (0.4)	<0.001	1.3 (0.8)
Condom use at last sex with female partner	10.0 (19)	39.4 (13)	13.7 (18)	<0.001	14.1 (50)
Gender of sexual partners					
Had sex with females in past 3 months	32.4 (89)	70.0 (28)	51.8 (87)	<0.001	42.2 (204)

* p-value not reported because of insufficient cell size (n<2).

Table 2: Commercial and non-commercial sexual practices of HR-MSM in study by sexual-identity, 2008-9.

Anal sex practices	Kothi % (n=275)	Panathi % (n=40)	Double-decker % (n=168)	p-value	Total % (n=483)
Reporting anal sex					
Had receptive anal sex in past 3 months	97.5 (268)	20.0 (8)	91.1 (153)	<0.001	88.8 (429)
Condom use at last receptive anal sex	82.6 (227)	17.5 (7)	72.0 (121)	<0.001	73.5 (355)
Reporting insertive sex					
Had insertive anal sex with males/TG in past 3 months	18.9 (52)	100.0 (40)	73.2 (123)	NR*	44.5 (215)
Condom use at last insertive anal sex with males/TG	78.9 (41)	72.5 (29)	82.9 (102)	0.349	80.0 (172)
Had insertive anal sex with females in past 3 months	1.8 (5)	30.0 (12)	6.0 (10)	<0.001	5.6 (27)
Condom use at last insertive anal sex with females	40.0 (2)	58.3 (7)	80.0 (8)	0.286	63.0 (17)

* p-value not reported because of insufficient cell size (n<2).

Table 3: Receptive and insertive anal sexual practices of HR-MSM in study by sexual-identity, 2008-9.

condom use at last sex with non-commercial male and female partners was 72% and 14%, respectively.

Gender of sexual partners

In the past three months, 58% of the participants had sex with male partners only, while the remaining 42% also had sex with a female partner during the same period (Table 2). The female partners could be a marital partner, non-commercial partners or female sex workers. Comparison between HR-MSM groups showed that, *kothis* were more likely to report having had sex with male partners only (68% versus 30% *panthis* and 48% *double-deckers*, $p<0.001$) and *panthis* were more likely to report bisexual behaviours (70% versus 32% *kothis* and 52% *double-deckers*, $p<0.001$).

A lower proportion of *kothis* had non-commercial partners (69% versus 83% *panthis* and 78% *double-deckers*, $p=0.047$), less likely to have a female non-commercial partner (20% as compared to 60% *panthis* and 29% *double-deckers*, $p<0.001$), and were less likely to have used condom at last non-commercial sex with a woman (10% versus 39% by *panthis* and 14% by *double-deckers*, $p<0.001$). *Panthis* were less likely to have

used condom at last non-commercial sex with a man (58% as compared to 71% in *kothis* and 77% in *double-deckers*, $p=0.072$), but more likely to have used condom at last non-commercial sex with a woman (39% as compared to 10% *kothis* and 14% *double-deckers*, $p=0.072$).

Anal sex practices

Receptive and insertive anal sex practices of MSM are shown in Table 3. About 89% participants reported receptive anal sex and 45% reported insertive anal sex in the three months prior to the study. Condom use at last receptive and insertive anal sex with males was 74% and 80% respectively.

Almost all *kothis* reported receptive anal sex in last three months (98% versus 91% *double-deckers* and 20% *panthis*, $p<0.001$), and condom use at last receptive anal sex was higher (83% versus 72% *double-deckers* and 18% *panthis*, $p<0.001$). *Kothis* reported the lowest frequency of insertive anal sex with males/transgenders (19% as compared to 100% *panthis* and 73% *double-deckers*, $p<0.001$), and were less likely to practice insertive anal sex with females (2% versus 30% *panthis* and 6% *double-deckers*, $p<0.001$).

Prevalence of STI/HIV	Kothi % (n=275)	Panthis % (n=40)	Double-decker % (n=168)	p-value	Total % (n=483)
Rectal NG	10.9 (30)	20.0 (8)	10.1 (17)	0.195	11.4 (55)
Rectal CT	3.3 (9)	5.0 (2)	7.1 (12)	0.153	4.8 (23)
Rectal NG/CT	13.1 (36)	22.5 (9)	16.1 (27)	0.258	14.9 (72)
Urethral NG/CT	1.8 (5)	0.0 (0)	3.0 (5)	NR*	2.1 (10)
HIV	44.1 (120)	2.5 (1)	29.7 (49)	NR*	35.6 (170)

* p-value not reported because of insufficient cell size (n<2).

Table 4: Sexually transmitted infections including HIV among MSM in study by sexual-identity, 2008-9.

Prevalence of NG/CT and HIV

Prevalence of NG and/or CT and HIV are presented in Table 4. About 15% of the MSM had ano-rectal NG/CT, 2.1% had urethral NG/CT and 36% were infected with HIV. *Kothis* had the highest prevalence of HIV (44.1% versus 2.5% and 29.7% among *panthis* and *double-deckers*, respectively). Surprisingly, *panthis* had a high prevalence of rectal NG and/or CT (22.5% as compared to 13.1% and 16.1% among *kothis* and *double-deckers*, respectively) and none of them had urethral NG/CT.

Discussion

This study shows that socio-demographic characteristics and sexual behaviours of HR-MSM varied by self-reported identity and the behaviours correlate well with indigenous categorisation of MSM in India. As expected, most socio-demographic characteristics, commercial and non-commercial sexual practices, gender of sexual partner/s, receptive and insertive anal sex practices conformed to the identity groups, though there were some cross-overs between identities and actual sexual behaviours. Although MSM identity groups were comparable in term of marital status and levels of condom use, they differed regarding: age, literacy, sex work as major source of income, gender of sexual partners (homosexual or bisexual), buying or selling sex, number and gender of clients, duration in sex-work, and practice of insertive or receptive anal sex.

Compared to other MSM groups, *kothis* were older, less literate, more likely to sell sex to men, had larger numbers of male clients, had sold sex for a longer time, were more likely to practice receptive anal sex and were less likely to have female partners. *Panthis* were bisexual with high literacy rates who mostly reported exclusive insertive anal sex with male partners. They purchased sex from both men and women and were less exposed to interventions than other MSM groups. *Double-deckers* represented the MSM group most exposed to HIV/STI interventions. They usually lived with their sexual partner, and practiced both receptive and insertive anal sex with males.

Most of the earlier studies on MSM identity in India and elsewhere did not examine the differences in sexual behaviour based on sexual identity [9,10,17]. A few Indian studies have indicated that the self-reported identity may not always reflect the actual sexual practices and related risks [8,18]. However, our study showed that the sexual behaviour of MSM varies by identity as per the categorisations, though the behaviour of certain individuals might not be attributable to the identity. Phillips et al. observed that the identity may evolve over time in response to social, political and cultural developments [8,10]. In addition, MSM who sell sex are likely to engage in sexual activities designed to meet the desires of their paying partner. Therefore, the self-identity may not conform to the practices during commercial sex. MSM may engage in behaviour discordant with their identity for many reasons (experimentation, commercial sex work, or constraints on

available partners) [11].

MSM of all three identity groups studied, had high risk behaviours. They reported having sex with multiple sexual partners including commercial as well as non-commercial, male, female and transgender partners. They were practicing receptive as well as insertive anal sex with their partners, and levels of consistent condom use with commercial and non-commercial partners were low. Even though a majority of MSM reported having sex only with male partners, a significant proportion, *panthis* in particular had female sexual partners as well. Many MSM often get married to women and engage in marital sex due to societal and peer pressures in response to social, familial and cultural norms in India and Asia [14,15]. A study on MSM in Andhra Pradesh found that 42% MSM were married to females, and 50% reported sexual relations with women in past three months [12]. With low levels of condom use with female partners, MSM act as a bridge for transmission of HIV and STIs between female to male partners, and from male to females [17,19-21]. An earlier study from India showed that HIV prevalence was higher among MSM selling sex than among those not selling sex [9].

In Asian countries, MSM are a marginalized group and hard to reach with prevention services [2,12, 22]. As Adam et al. pointed out, in low and middle income countries the social stigma attached to male-to-male sex and criminalisation of the behaviour coupled with limited resources, and poor quality and coverage of programmes make MSM a higher risk group for acquiring HIV [23].

Unprotected receptive anal sex is known to be a very high risk behaviour associated with the acquisition of STIs including HIV [16]. Surprisingly, our study results showed that rectal NG/CT was highest among *panthis*. This could be a result of low rates of condom use reported by the *panthis* during receptive anal sex (17.5% at last receptive anal sex). Though the overall prevalence of urethral NG/CT was low among the study population, no cases were detected among the *panthis*. This was despite the fact that among the three groups, *panthis* reported the highest proportion of sex with females and insertive anal sex practices in the last three months. In spite of high reported condom use, *kothis* had the highest prevalence of HIV, probably because all of them practiced receptive anal sex and reported larger number of clients than other MSM groups. These findings were consistent with other Indian studies conducted among MSM groups which found that *kothis* have an elevated risk for STIs and HIV [8-10,12,17]. *Double-deckers* were also found to be at a high risk for acquiring STIs because they practice both receptive and insertive anal sex and most report multiple partners including commercial and non-commercial sexual partners from all genders (male, female and transgender) [6,17].

In our study, although some of the individual's behaviours varied from their self-reported identity, the indigenous classification of MSM identity generally matched the expected behaviours. Differentials in sexual behaviour by self-reported identity might provide an avenue for targeted prevention messages that emphasize the risks of a particular sub-population of MSM. Indeed, regular HIV testing and positive prevention should be emphasized among *kothis*, education on HIV prevention in heterosexual sex should target *panthis* and *double-deckers*, and innovative strategies to attract *panthis* in prevention and care programs are needed. However, owing to the fact that all groups reported high-risk behaviours with an overall high prevalence of HIV, and considering the practical difficulties in providing specific interventions to different MSM identity groups, targeted interventions need to promote regular HIV testing, provide information for prevention of heterosexual transmission of STIs including HIV and promote risk-reduction strategies to all MSM regardless of their sexual

identity. In addition, there is a need to re-emphasise taking the complete sexual history and assessing sexual risks of all MSM during clinical consultations in order to improve STI management and counselling to reduce HIV transmission [24,25]. Clinical management of STIs should be standardized regardless of the MSM self-reported identity. Even though the national guidelines for STI management among MSM recommend a complete physical examination of all clinic attendees, it is observed that in some clinical settings both physician and patients may oppose physical examination of anatomical sites which are not relevant to the self-reported sexual identity. Sensitization of clinicians and MSM clinic attendees to the need for a complete physical examination is required to improve the control of STIs among MSM.

The study was conducted among clinic attendees, using a take-all approach among all eligible and consenting MSM and hence may not represent the population of MSM in the larger community. In addition, the exclusion of MSM who had less than two male partners in the past month restricted the study to those MSM at highest risk. As suggested in an earlier study, transgenders were excluded from the analysis, because their sexual behaviours were expected to be consistent across the group [10]. There could be a study have limited the interpretation of behaviours in this group and hampered the computation of some statistical tests. It also indicates that *panthis* were a hard-to-reach group who are less exposed to interventions than other MSM. It could be argued that either the *panthis* might have a lower risk perception or they might perceive MSM interventions as stigmatizing.

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